



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/695,813

10/30/2003

Chang-Ho Liou

LI0U3010/EM

6894

23364

7590

04/19/2006

BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER

MOON, SEOKYUN

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/695,813	Applicant(s) LIOU ET AL.	
	Examiner Seokyun Moon	Art Unit 2629	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the aspect of the invention disclosed in claim 8, "*wherein positive and negative polarities of the characteristic curve*" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claim 3** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The aspect of the invention disclosed in claim 3, "... *the digital-to-analog converters input the coded data through sample/latch*" is not disclosed in the specification and not consistent with the aspect of the invention disclosed in the application [*Fig. 3 and Pg. 4 Lines 10 - 13*].

For further examination purpose, the claim limitation, "... *the digital-to-analog converters input the coded data through sample/latch*" will be interpreted as "... *the coded data are inputted to digital-to-analog converters through sample/latch*" to be

Art Unit: 2629

consistent with the aspect of the invention disclosed in the specification and the drawing in the application.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claim 8** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The aspect of the invention disclosed in claim 8, "wherein positive and negative polarities of the characteristic curves respectively have a plurality of selection voltages, each having a range of operating voltage" is not clearly defined / indicated, and thus is an indefinite limitation.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1, 2, 4, and 6-8** are rejected under 35 U.S.C. 102(b) as being anticipated by Naito (U.S. Pat. No. 6,462,735 B2, herein after referred to as "Naito").

As to **claim 1**, Naito [Fig. 2] teaches a driving circuit (a combination of "signal-processing circuit 200", "amplifying block 300", and "data drive circuit 430") for solving color dispersion, implemented in a flat panel display ("liquid crystal display") with a

Art Unit: 2629

plurality of display cells ("*liquid crystal pixel section 410*") [Col. 7 Lines 64-64], the driving circuit comprising:

a coding unit ("*ASIC 210*"), to generate a plurality of coded data ("*D1', D2', D3', ..., D6*", the modified data of "*D1, D2, D3, ..., D6*" outputted after performing gamma-correction, conversion, and polarity inversion) according to a plurality of characteristic curves [Figs. 3, 4, 5, and 6] [Col. 12 Lines 24-40];

a reference voltage generator (a combination of "*D/A conversion block 260*" and "*amplifying block 300*"), to receive the coded data, convert the coded data from digital to analog, and generate a plurality of reference voltages ("*V1*", "*V2*", ..., "*V6*") [Col. 7 Lines 38-43]; and

a driving unit ("*data driver circuit 430*"), to receive the reference voltages and accordingly drive the display cells [Col. 8 Lines 27-34].

As to **claim 2**, Naito [Fig. 2] teaches the reference voltage generator (a combination of "*D/A conversion block 260*" and "*amplifying block 300*") further to comprise a plurality of digital-analog converters ("*D/A converters 261, 262, ..., 266*") for digital to analog conversion [Col. 7 Lines 38-43].

As to **claim 4**, Naito [Fig. 2] teaches each digital-to-analog converter (each of "*D/A converters 261, 262, ..., 266*") to input the coded data ("*D1', D2', D3', ..., D6*", the modified data of "*D1, D2, D3, ..., D6*" outputted after performing gamma-correction, conversion, and polarity inversion) through a plurality of control signal lines (lines or wires connecting the "*digital polarity reversal circuit 240*" to the plural of "*D/A converters*").

As to **claim 6**, Naito [*Figs. 3 and 6*] teaches the plurality of characteristic curves is Gamma curves respectively for three primary colors R, G, B.

As to **claim 7**, Naito [*Fig. 2*] teaches the driving unit ("*data driver circuit 430*") to be a data driver [*Col. 8 Lines 27-34*].

As to **claim 8**, as best understood by examiner, the claim is rejected by Naito since the characteristic curves disclosed in the drawing of the application are equivalent to the curves shown in *Figs. 3 and 6* of Naito, and thus the disclosed claim limitation regarding the characteristic curves are anticipated by Naito's curves.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 3 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Dalke et al. (U.S. Pat. No. 4,183,046, herein after referred to as "Dalke").

As to **claim 3**, Naito teaches that the digital-to-analog converters are inputted the coded data.

Naito does not teach that the coded data are inputted through sample/latch.

However, Dalke [*Fig. 1*] teaches latches ("*latch circuits 56 and 58*") implemented between a D/A converter ("*converter 60*") and a data communication link ("*data bus 50*") delivering digital data, in driving circuitry for a display device [*Col. 3 Lines 64-68*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a plurality of latches for each data bits outputted from the digital polarity reversal circuit between the digital polarity reversal circuit and the D/A converters in Naito's reference voltage generator, to hold data on the input of D/A converters for a prescribe time interval, thus to provide a flexibility on driving time for Naito's display [*Col. 3 Lines 60-64*].

As to **claim 5**, Naito modified by Dalke as discussed with respect to the rejection of claim 3 teaches the reference voltage generator (Naito: a combination of "*D/A conversion block 260*" and "*amplifying block 300*") further comprises:

a plurality of sample/latch circuits, to receive the encoded data (Naito: "*D1', D2', D3', ..., D6'*", the modified data of "*D1, D2, D3, ..., D6*" outputted after performing gamma-correction, conversion, and polarity inversion) and apply the encoded data received to sample/latch processing (Dalke: "*to hold data on the input of D/A converters for a prescribe time interval*" [*Col. 3 Lines 60-64*]);

a plurality of digital-to-analog converters (Naito: "*D/A converters 261, 262, ..., 266*"), each having a plurality of control signal lines (Naito: lines or wires connecting the "*digital polarity reversal circuit 240*" to the plural of "*D/A converters*") to perform digital to analog conversion according to the encoded data which is outputted by the

Art Unit: 2629

sample/latch circuit and received by the control signal lines, thereby obtaining the reference voltages [*Naito*: Col. 7 Lines 38-43]; and

a plurality of buffers (*Naito*: “operational amplifiers 301, 302, ..., 306”), to receive the reference voltages (*Naito*: the voltages corresponding to the amplitude of “*analog picture signal*”), enhance their output amplitudes [Col. 3 Lines 15-18], and output the reference voltages enhanced to data drivers (*Naito*: “*data driver circuit 430*”).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nose (U.S. Pat. No. 6,879,310 B2) teaches a liquid crystal display and its driving method being provided which enable a proper gamma correction to be made to each of red, green, and blue colors without causing a decrease in a number of gray levels in an output image.

Yasuda (U.S. Pub. No. 2003/0160743 A1) teaches an active color electroluminescent display including a red gamma correction DAC, a green gamma correction DAC and a blue gamma correction DAC.

Lee (U.S. Pub. No. 2003/0085859 A1) teaches an LCD including a timing controller outputting digital gamma data for each of R, G, and B.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

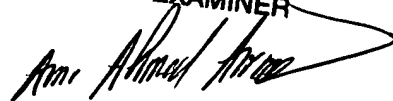
Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 7, 2006
S.M.

AMR A. AWAD
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", is written over the printed name and title.